

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 53

May, 1951

No. 629

BRYOPHYTES OF VIRGINIA, III. COLLECTIONS
MADE IN SOUTHEASTERN VIRGINIA BY
BAYARD LONG

PAUL M. PATTERSON

DURING the years 1934-1942, the late Professor M. L. Fernald of the Gray Herbarium of Harvard University, accompanied by Mr. Bayard Long of the Academy of Natural Sciences of Philadelphia, among others, made many collecting trips to the southeastern part of Virginia. Fernald's spectacular additions to the vascular flora of Virginia published during this period are well known. On these trips, in addition to the vascular plants, Mr. Long made representative collections of bryophytes as well, and kindly consented at the suggestion of Dr. W. C. Steere to let me examine them.

Mr. Long's series of 155 bryophytes in 490 numbers collected in 21 counties provides not only a good sample of the moss flora of the area, but also includes rare species, new records, and range extensions for the state. While these collections are not large, considering the territory covered, they are of good size when one considers that his primary interest centered on the collection of vascular plants. Furthermore, they show that a careful botanist can make representative and discriminating collections in a group with which he himself is relatively unfamiliar. For example, *Buxbaumia aphylla*, a very inconspicuous moss and one which is very generally overlooked even by bryologists themselves, is represented here by four different collections. Again, specimens of *Philonotis* usually seen are sterile; but all of his collections were in fruit, thus affording critical determinations in a group where sterile forms are often puzzling.

While a few of the common species are poorly represented, others are lacking or sparingly present because of the scarcity of certain habitats such as moist cliffs, boulders, and rocky creeks. However specimens were obtained from a variety of habitats ranging from low, boggy woods to sandy pine barrens, and from open ponds and swamps to dry fields.

Mr. Long's collections were made in 1934, 1937, 1939, 1940, 1941, and 1942; those of 1934 were named for the most part by Mr. E. B. Bartram. The collections were received in their original field folders. In each folder were placed the bryophytes collected at a specific habitat such as a decayed log. A number of these collections contained two to several sods of different bryophytes from the same identical place. In such a collection, when one species was packeted and assigned a number, if it was admixed with other bryophytes in the same collection, its name is not placed on the packets of the other associated species under separate numbers since this would erroneously increase the collections of this species. Individual collections containing but a single mixed sod do bear the names of the several bryophytes that occur together. These collections are located at the Academy of Natural Sciences of Philadelphia.

Various comments may be made upon a number of species in the collection. *Thuidium Alleni*, reported to occur in Virginia by Grout (1932), is represented by two collections (identity verified by W. C. Steere in one instance). This species is rather close to *T. delicatulum*, but in its typical form is readily distinguishable as are some other species close to *T. delicatulum*. A careful study of this species-group may possibly show intergradations requiring the reduction of some of them. The specific distinctness of *Thelia asprella* and *T. Lescurii* are equally open to challenge.

The only previous report of *Philonotis Muhlenbergii* in Virginia is that of Flowers (1935). A small piece of a sod of sterile *Bryum* in an admixture of other bryophytes was tentatively determined by Dr. A. LeRoy Andrews as *B. bicolor* and is listed below on this basis. The only earlier specific reference to this moss in Virginia is that of Small & Vail (1893).

There was a series of new records and range extensions reported by Iltis (1950) and Patterson (1950). Several are represented

in Mr. Long's collections. Two of these are hepatics: *Frullania Kunzei* and *Leucolejeunea conchifolia*. The rest are mosses: *Sphagnum cyclophyllum*, *S. compactum*, *S. tabulare*, *Fissidens Julianus*, *Helodium paludosum*, *Thelia Lescurii*, *Cryphaea glomerata*, and *Brachelyma subulatum*. While *Sphagnum compactum* and *Cryphaea glomerata* are now known to be rather frequent, the others are apparently not common and the presently reported collections makes significant additions to the previously known records.

Mr. Long's collections add four new records to Virginia's bryophyte flora. *Philonotis longiseta* was recorded by Michaux in 1801 as *Bartramia longiseta* Rich. from the large territory then known as Virginia. Dr. A. J. Sharp collected a polygamous form of this normally synoecious species in eastern Tennessee which Flowers (1935) described as the new form *polygama*. All other species of *Philonotis* are dioecious. Mr. Long collected this polygamous form twice. Another new record is the variety *latifolia* of *Fontinalis novae-angliae*, an identification kindly made by Dr. Winona H. Welch.

There are two species of *Sphagnum* new to the state: *S. erythrocalyx* and *S. macrophyllum*. Andrews (1913) states that *S. erythrocalyx* extends as far north as New Jersey and Blomquist (1938) reports it to be common in the southeastern states. There are no other published records of this species in Virginia and its abundance here is yet to be determined. *S. macrophyllum*, one of the most distinctive of peatmosses, ranges from Maine to Florida and Louisiana along the coast but, apparently, is nowhere abundant. Sharp (1947) has reported its occurrence as far inland as the Cumberland plateau of Tennessee. There are now 22 species and varieties of *Sphagnum* known in Virginia. Blomquist (1938) records 27 species and varieties in the states south of Virginia. Sharp (1939) has found *S. pylaesii* and *S. squarrosus* in the Great Smoky Mountains of eastern Tennessee, but these are not known from Virginia. Similarly, Blomquist (1937) reports the northern *S. papillosum* and *S. squarrosus* and the southern *S. portoricense* from North Carolina. Thus, while there is a good representation of this group in Virginia, several others may be expected.

There are two striking range extensions in Mr. Long's collections. The hepatic, *Anthoceros Ravenelii*, is here reported for

the first time north of South Carolina. This is a very distinctive species with large (up to 100 micra), black, slightly roughened spores and ellipical to globular, irregularly thickened, unicellular elaters. The other is the moss, *Mnium cinclidioides*, normally occurring in cold bogs and swamps in northern United States and Canada. Its previous southernmost collection was reported by Andrews (1940) to be in New Jersey. Dr. Andrews, who confirmed the identification of this plant, states in a letter that he knows of no other record of it south of New Jersey since that time. While its occurrence in a high mountain bog would have been a real surprise, Mr. Long found it on the Coastal Plain, a short distance southeast of the city of Richmond in New Kent County at the "foot of (a) wooded slope, bottomland, along Chickahominy River at Sandy Bridge."

Omitting forms, this collection brings the known bryophytes occurring in Virginia to a total of 479 species and varieties.

In addition to those mentioned above, I am indebted to Dr. Lewis E. Anderson and Miss Lois Clark each for determining a specimen for me.

In the following list the collection numbers are given following the county name in which they were made.

HEPATICAEE

PTILIDIACEAE

Trichocolea tomentella (Ehrh.) Dum.—: Southampton, 2625; Sussex, 2740.

LEPIDOZIIACEAE

Lepidozia reptans (L.) Dum.—: Surry, 2455 in part.

CEPHALOZIIACEAE

Cephalozia bicuspidata (L.) Dum.—: Nansemond, 2777 in part.

Cephalozia media Lindb.—: Princess Anne, 2786.

Nowellia curvifolia (Dicks.) Mitt.—: Nansemond, 2777.

Odontoschisma prostratum (Sw.) Trevis.—: King William, 2606; Greenville, 2626; James City, 2573; Nansemond, 2775, & 2856 in part; Norfolk, 2801 in part; Princess Anne, 2399, & 2403 in part; Surry, 2455 in part, & 2667.

HARPANTHACEAE

Lophocolea bidentata (L.) Dum.—: Surry, 2704 in part.*

Lophocolea heterophylla (Schrad.) Dum.—: Greenville, 2836; Nansemond, 2665 in part.

MARSUPELLACEAE

Marsupella sphacelata (Gieseke) Dum.—: Nansemond, 2563.

PLAGIOCHILACEAE

Plagiochila asplenoides (L.) Dum.—: Greenville, 2624.

SCAPANIACEAE

Scapania nemorosa (L.) Dum.—: Greenville, 2836 in part; James City, 2599; Nansemond, 2593 in part; Princess Anne, 2432 & 2388; Sussex, 2762 & 2765.

PORELLACEAE

Porella pinnata L.—: Greenville, 2586.

RADULACEAE

Radula obconica Sull.—: Norfolk, 2800.

FRULLANIACEAE

Frullania Asagrayana Mont.—: Prince George, 2813; Princess Anne, 2408 in part.

Frullania Brittoniae Evans—: James City, 2864; Princess Anne, 2412; Southampton, 2647.

Frullania eboracensis Gottsche—: Norfolk, 2792.

Frullania Kunzei Lehm. & Lindb.—: Isle of Wight, 2679.

LEJEUNEACEAE

Leucolejeunea clypeata (Schwein.) Evans—: Greenville, 2587 in part; Norfolk, 2793.

Leucolejeunea conchifolia Evans—: Isle of Wight, 2679 in part.

Leucolejeunea uncinata (Lindb.) Evans—: Princess Anne, 2437 in part.

PELLIACEAE

Pellia epiphylla (L.) Corda—: Henrico, 2618.

PALLAVICINIACEAE

Pallavicinia Lyellii (Hook.) S. F. Gray—: Greenville, 2840; New Kent, 2554; Norfolk, 2801; Princess Anne, 2415; Sussex, 2480, 2698, & 2763.

METZGERIACEAE

Metzgeria furcata (L.) Dum.—: Greenville, 2584.

RICCARDIACEAE

Riccardia multifida (L.) S. F. Gray—: Norfolk, 2802.

Riccardia palmata (Hedw.) Carruth.—: Sussex, 2461.

Riccardia pinguis (L.) S. F. Gray—: King William, 2607.

MARCHANTIACEAE

Marchantia polymorpha L.—: Isle of Wight, 2751.

Conocephalum conicum (L.) Dum.—: Southampton, 2634; Surry, 2653.

REBOULIACEAE

Asterella tenella (L.) Beauv.—: Greenville, 2627; Sussex, 2669.

Reboulia hemisphaerica (L.) Raddi—: Southampton, 2628, & 2642.

RICCIACEAE

Riccia fluitans L.—: Norfolk, 2808.

ANTHOCEROTACEAE

Anthoceros Ravenelii Aust.—: Southampton, 2675.

BRYINAE

SPHAGNACEAE

Sphagnum capillaceum (Weiss) Schrank var. *tenellum* (Schimp.) Andrews—: Nansemond, 2519; Princess Anne, 2784.

Sphagnum cuspidatum Ehrh. var. *Torreyi* (Sull.) Braith.—: Nansemond, 2564.

Sphagnum cyclophyllum Sull. & Lesq.—: Dinwiddie, 2458; Greensville, 2479; Princess Anne, 2409.

Sphagnum compactum DC.—: Nansemond, 2855.

Sphagnum erythocalyx Hampe—: Isle of Wight, 2873; Nansemond, 2529.

Sphagnum imbricatum Hornsch.—: Greensville, 2841; Isle of Wight, 2857; Nansemond, 2566; Southampton, 2565; Surry, 2456.

Sphagnum imbricatum Hornsch. var. *affine* (R. & C.) Warnst.—: Norfolk, 2818.

Sphagnum macrophyllum Bernh.—: York, 2447.

Sphagnum magellanicum Brid.—: Nansemond, 2518; Princess Anne, 2785.

Sphagnum palustre L.—: King & Queen, 2770; Nansemond, 2772; Norfolk, 2810.

Sphagnum recurvum Beauv.—: Sussex, 2682.

Sphagnum subsecundum Nees—: Caroline, 2845; Dinwiddie, 2832; Greensville, 2471; Norfolk, 2773, & 2854; Prince George, 2811; Sussex, 2699.

Sphagnum tabulare Sull.—: King William, 2604.

TETRAPHIDACEAE

Tetraphis pellucida Hedw.—: Nansemond, 2592.

POLYTRICHACEAE

Atrichum undulatum (Hedw.) Beauv.—: Dinwiddie, 2448; Nansemond, 2567; Norfolk, 2797; Southampton, 2591, & 2643.

Atrichum xanthopelma (C. Muel.) Jaeg. & Sauerb. —: Charles City, 2578; Surry, 2617.

Pogonatum brachyphyllum (Rich.) Beauv.—: Charles City, 2610; Dinwiddie, 2645, & 2824; Greensville, 2622.

Pogonatum pensilvanicum (Hedw.) Paris—: Nansemond, 2450; Sussex, 2555.

Polytrichum commune Hedw.—: Dinwiddie, 2825; Norfolk, 2395, & 2853; Princess Anne, 2397.

Polytrichum juniperinum Hedw.—: Isle of Wight, 2848, & 2861; Nansemond, 2513, & 2651.

Polytrichum ohioense Ren. & Card.—: James City, 2597; Surry, 2660.

FISSIDENTACEAE

Fissidens adiantoides Hedw.—: Surry, 2683.

Fissidens cristatus Wils.—: Greenville, 2464, 2585, & 2723 in part; Nansemond, 2760; Princess Anne 2438; Prince George, 2595; Southampton, 2570; Sussex, 2460, & 2462.

Fissidens Julianus (Mont.) Schimp.—: Isle of Wight, 2735; Norfolk, 2820.

Fissidens taxifolius Hedw.—: Surry, 2729.

DITRICHACEAE

Ceratodon purpureus (Hedw.) Brid.—: Isle of Wight, 2663, & 2684.

Ditrichum pallidum (Hedw.) Hampe—: Dinwiddie, 2556, & 2661; James City, 2598; Nansemond, 2658, & 2856; Princess Anne, 2389, 2391, 2419, & 2783.

Ditrichum pusillum (Hedw.) E. G. Britton—: Princess Anne, 2396.

Pleuridium subulatum (Hedw.) Lindb.—: Sussex, 2454.

DICRANACEAE

Dicranella heteromalla (Hedw.) Schimp.—: Southampton, 2628 in part; Surry, 2752; Sussex, 2459.

Dicranella heteromalla (Hedw.) Schimp. var. *orthocarpa* (Hedw.) Paris—: Southampton, 2524.

Dicranum condensatum Hedw.—: James City, 2574; Nansemond, 2467, 2514, & 2652; Princess Anne, 2413.

Dicranum flagellare Hedw.—: Nansemond, 2534; Princess Anne, 2545 in part, & 2789.

Dicranum scoparium Hedw.—: Dinwiddie, 2449, & 2828; Greenville, 2546; Nansemond, 2515; New Kent, 2601; Princess Anne, 2429, 2440, 2401, & 2788; Surry, 2613; Sussex, 2549.

LEUCOBRYACEAE

Leucobryum albidum (Brid.) Lindb.—: Caroline, 2453 in part; Dinwiddie, 2829; Greenville, 2547; James City, 2572; Nansemond, 2615; Princess Anne, 2390, 2394, 2436 in part, 2441, 2545 in part, 2782, & 2791.

Leucobryum glaucum (Hedw.) Schimp.—: Henrico, 2636; Nansemond, 2510, & 2774; Southampton, 2538.

CALYMPERACEAE

Syrrophodon texanus Sull.—: Princess Anne, 2725.

BUXBAUMIACEAE

Buxbaumia aphylla Hedw.—: James City, 2621; Nansemond, 2666; Southampton, 2673; Sussex, 2747.

Diphyscium foliosum (Hedw.) Mohr.—: Henrico, 2445; Isle of Wight, 2676; King George, 2869; Nansemond, 2757, & 2778; Southampton, 2689; Surry, 2455, 2667, & 2715; Sussex, 2749.

POTTIACEAE

Barbula unguiculata Hedw.—: Isle of Wight, 2817; Sussex, 2550.

Gymnostomum calcareum Nees & Hornsch.—: Isle of Wight, 2738.

Gymnostomum recurvirostrum Hedw.—: Isle of Wight, 2739.

Tortella humilis (Hedw.) Jennings—: Nansemond, 2536; Surry, 2630.

Tortula muralis Hedw.—: Dinwiddie, 2603.

Weisia viridula Hedw.—: Dinwiddie, 2662; Isle of Wight, 2706, & 2742; Nansemond, 2664; Prince George, 2640; Princess Anne, 2392, & 2420; Sussex, 2654.

GRIMMIACEAE

Grimmia apocarpa Hedw.—: Sussex, 2542.

Hedwigia ciliata Hedw.—: Greensville, 2718; Sussex, 2543, 2551, 2620, & 2633.

Ptychomitrium Drummondii Sull.—: Southampton, 2489; Surry, 2528; Sussex, 2692, & 2693.

FUNARIACEAE

Funaria flavicans Mx.—: Henrico, 2614.

Funaria hygrometrica Hedw.—: Norfolk, 2871.

Physcomitrium turbinatum (Mx.) Brid.—: Surry 2872.

ORTHOTRICHACEAE

Orthotrichum pumilum Dicks.—: James City, 2863.

Orthotrichum strangulatum Schwaegr.—: Princess Anne, 2425.

AULACOMNIACEAE

Aulacomnium heterostichum (Hedw.) B. S. G.—: James City, 2631; Prince George, 2638; Southampton, 2494; Surry, 2655, & 2714; York, 2677.

Aulacomnium palustre (W. & M.) Schwaegr.—: Dinwiddie, 2826; Nansemond, 2674; Norfolk, 2809; Princess Anne, 2403.

BARTRAMIACEAE

Bartramia pomiformis Hedw.—: Charles City, 2577, & 2637; Greensville, 2835; James City 2632; Southampton, 2495, 2539, & 2649; Surry, 2612, & 2728.

Philonotis longiseta (Rich.) E. G. Britton, forma *polygama* Flowers—: Prince George, 2611, & 2668.

Philonotis marchica (Willd.) Brid.—: Isle of Wight, 2705, 2724, 2737, & 2816; Surry, 2616.

Philonotis Muhlenbergii (Schwaegr.) Brid.—: Isle of Wight, 2750.

BRYACEAE

Bryum argenteum Hedw.—: Southampton, 2533, & 2657; Sussex, 2619.

Bryum bicolor Dicks.—: Sussex, 2551a.

Bryum pseudotriquetrum (Hedw.) Schwaegr.—: Isle of Wight, 2753.

Pohlia Wahlenbergii (W. & M.) Andrews—: Southampton, 2490; King William, 2605.

Rhodobryum roseum (B. S. G.) Limpr.—: Southampton, 2648; Surry, 2711.

MNIACEAE

Mnium affine Bland.—: Greensville, 2721 & 2722.

Mnium cinclidioides Hüben.—: New Kent, 2558.

Mnium cuspidatum Hedw.—: Essex, 2846 in part; Greensville, 2473, & 2580; Nansemond, 2755; Norfolk, 2444; Princess Anne, 2517; Southampton, 2508, 2650, & 2670; Surry, 2653 in part, 2704 in part, & 2712; Sussex, 2481, & 2701.

Mnium hornum Hedw.—: Nansemond, 2761.

Mnium punctatum Hedw. var. *elatum* Schimp.—: Sussex, 2741.

HYPNACEAE

Amblystegium Juratzkanum Schimp.—: Sussex, 2461 in part.

Amblystegium varium (Hedw.) Lindb.—: Caroline, 2858; Essex, 2846 in part, & 2847; Isle of Wight, 2736 in part; James City, 2769 in part; Surry, 2457 in part, 2498, & 2635.

Brachythecium oxycladon (Brid.) J. & S.—: Charles City, 2579; Norfolk, 2796, & 2798; Southampton, 2521.

Brachythecium rutabulum (Hedw.) B. S. G.—: Caroline, 2849.

Brachythecium salebrosum (W. & M.) B. S. G.—: Nansemond, 2759 in part.

Bryhnia graminicolor (Brid.) Grout—: York, 2678.

Campylium hispidulum (Brid.) Mitt.—: Princess Anne, 2431; Surry, 2630 in part.

Cirriphyllum Boscii (Schwaegr.) Grout—: Greenville, 2720, & 2834; Isle of Wight, 2676 in part; Nansemond, 2501; New Kent, 2600; Princess Anne, 2427, 2435, & 2436; Southampton, 2492, 2520, 2539 in part, & 2569; Surry, 2500.

Climacium americanum Brid.—: Greenville, 2472; Nansemond, 2756; Norfolk, 2443; Southampton, 2537, & 2671; Sussex, 2697.

Climacium Kindbergii (R. & C.) Grout—: Caroline, 2870; Greenville, 2580 in part; King William, 2608; Nansemond, 2748 in part; Norfolk, 2801 in part, & 2852; Prince George, 2812; Princess Anne, 2404; Southampton, 2486, 2496 in part, 2507, & 2560.

Entodon cladorrhizans (Hedw.) C. Müll.—: Caroline, 2859.

Entodon seductrix (Hedw.) C. Müll.—: Charles City, 2561; Greenville, 2581, & 2839; James City, 2531, & 2766; Nansemond, 2589; New Kent, 2596; Norfolk, 2851; Princess Anne, 2516; Southampton, 2487, 2488, & 2623; Sussex, 2548, & 2688.

Eurhynchium hians (Hedw.) J. & S.—: Isle of Wight, 2707 in part; Norfolk, 2795; Surry, 2710; York, 2678 in part.

Eurhynchium rusciforme (Neck.) Milde—: Greenville, 2823.

Eurhynchium serrulatum (Hedw.) Kindb.—: Dinwiddie, 2830; Essex, 2846; Prince George, 2639; Princess Anne, 2393, 2400, & 2430; Southampton, 2541, & 2644; Surry, 2716, & 2727.

Eurhynchium strigosum (Hoffm.) B. S. G.—: Nansemond, 2503; Southampton, 2523.

Homalotheciella fabrofolia (Grout) Broth.—: Greenville, 2587.

Hygroamblystegium irriguum (Wils.) Loeske—: James City, 2767, & 2865.

Hygroamblystegium orthocladon (P. B.) Grout—: Sussex, 2659.

Hypnum curvifolium Hedw.—: Nansemond, 2512, 2593, & 2754; Southampton, 2485; Surry, 2629.

Hypnum imponens Hedw.—: James City, 2575.

Hypnum molluscum Hedw.—: Prince George, 2641; Norfolk, 2800 in part.

Hypnum Patientiae Lindb.—: Greenville, 2469 in part, 2734, 2833, & 2838; James City, 2530, & 2769; King William, 2609; Nansemond, 2748; Norfolk, 2806; Prince George, 2815; Princess Anne, 2405, & 2787; Southampton, 2497, 2504, 2646, 2672, & 2731 in part; Surry, 2780; Sussex, 2700 in part, & 2484.

Leptodictyum riparium (Hedw.) Warnst.—: Caroline, 2844; Greenville, 2469, & 2843; Isle of Wight, 2708, & 2744; James City, 2865 in part; Norfolk,

2803; Princess Anne, 2410, & 2695; Southampton, 2477, 2560 in part; Sussex, 2702.

Leptodictyum trichopodium (Schultz) Warnst. var. *Kochii* (B. S. G.) Broth.—: Surry, 2656, & 2726.

Plagiothecium micans (Sw.) Paris—: Caroline, 2453; Dinwiddie, 2557; Greenville, 2862; King William, 2732; Nansemond, 2534 in part, 2771, & 2776; Norfolk, 2804; Princess Anne, 2386, 2414, 2421, 2545, 2725 in part, & 2786 in part; Sussex, 2685 in part, & 2842.

Plagiothecium sylvaticum (Brid.) B. S. G.—: Southampton, 2476.

Platygyrium repens (Brid.) B. S. G.—: Princess Anne, 2408.

Pyralisia Selwynii Kindb.—: Caroline, 2452; York, 2680.

Sematophyllum adnatum (Mx.) E. G. Britton—: Greenville, 2837; Isle of Wight, 2679 in part; Norfolk, 2428, & 2821; Princess Anne, 2416, 2433, & 2434.

LESKEACEAE

Anomodon attenuatus (Hedw.) Hübner.—: Charles City, 2576; Greenville, 2475, 2582, & 2733; James City, 2766 in part, 2768 in part; Nansemond, 2511, & 2590; Norfolk, 2799; Prince George, 2814; Princess Anne, 2407, & 2418; Southampton, 2493, 2569 in part, & 2875; Surry, 2717; Sussex, 2483, & 2703.

Anomodon minor (Beauv.) Lindb.—: Greenville, 2465.

Anomodon rostratus (Hedw.) Schimp.—: Greenville, 2723; Isle of Wight, 2707 & 2736; Southampton, 2522 in part; Surry, 2499.

Haplodymenium triste (Cesati) Kindb.—: Princess Anne, 2437 in part.

Helodium paludosum (Sull.) Austin—: Charles City, 2553.

Leskea arenicola Best—: Sussex, 2694.

Leskea gracilescens Hedw.—: Norfolk, 2790; Southampton, 2477 in part & 2491; Surry, 2526.

Leskea obscura Hedw.—: Southampton, 2496; Sussex, 2745.

Thelia asprella Sull.—: Nansemond, 2535; Norfolk, 2850.

Thelia Lescurii Sull.—: Isle of Wight, 2866; Nansemond, 2665 in part.

Thelia hirtella (Hedw.) Sull.—: James City, 2532; New Kent, 2779; Princess Anne, 2402, 2406, & 2417; Southampton, 2451.

Thuidium Alleni Austin—: Norfolk, 2805; Princess Anne, 2411.

Thuidium delicatulum (Hedw.) Mitt.—: Dinwiddie, 2627; Greenville, 2422 in part, 2468, 2505, 2580 in part, 2583, 2719, & 2822; Nansemond, 2502, & 2593 in part; New Kent, 2562, & 2602; Norfolk, 2426, 2805, & 2850 in part; Princess Anne, 2387, & 2439; Southampton, 2509, 2522, 2540, & 2591 in part; Surry, 2613 in part, 2709, & 2713; Sussex, 2463, & 2552.

Thuidium microphyllum (Hedw.) Best—: Caroline, 2860; Greenville, 2466, 2470, 2506, 2837 in part, & 2862 in part; Nansemond, 2665, & 2759; Southampton, 2731; Surry, 2780 in part; Sussex, 2685, 2690, 2691, 2700, & 2746.

Thuidium minutulum (Hedw.) B. S. G.—: Surry, 2457, & 2704.

LEUCODONTACEAE

Leptodon trichomitrium (Hedw.) Mohr.—: Greenville, 2474, & 2831; James City, 2768; Norfolk, 2794; Southampton, 2874; Sussex, 2482.

Leucodon julaceus (Hedw.) Sull.—: Charles City, 2571; Greenville, 2587 in part; Nansemond, 2594; Princess Anne, 2398, 2422, 2437, 2442, & 2686; Southampton, 2446, 2478, & 2568; Surry, 2525; York, 2681.

Cryphaea glomerata Schimp.—: Nansemond, 2544; Princess Anne, 2423.

Clasmatodon parvulus (Hampe) Sull.—: Greenville, 2730; Princess Anne, 2424, & 2687; Southampton, 2491 in part.

Schwetschkeopsis denticulata (Sull.) Broth.—: Greenville, 2588.

Brachelyma subulatum (Beauv.) Schimp.—: Southampton, 2781.

Fontinalis dalecarlica B. S. G.—: Surry, 2743; Sussex, 2696.

Fontinalis novae-angliae Sull.—: Southampton, 2559; Sussex, 2763 in part, & 2764.

Fontinalis novae-angliae Sull. var. *latifolia* Card.—: Norfolk, 2867.

CORRECTIONS AND NOTES

A note should be made here concerning some printer's errors in my previous paper (1950). The report of Iltis (1950) of *Plagiochila Sullivantii* Gottsche should be noted there as his is the first report of this hepatic since that of Sullivant. On page 40, line 5, the first mention of *Sphagnum strictum* should read *Sphagnum compactum* DC. and it is represented in Dinwiddie County, among others, by Correll's collection No. 11521. Several other errors are of lesser importance and thus not enumerated.

Atrichum xanthopelma has been previously listed in this series as *A. Macmillani* (Holz.) Frye. In a recent study, Frye (1949) indicates the former to be the correct name. That it is a common moss of the coastal plain was noted in my paper (l. c.). Schornherst (1950) has reported that it is much more common than *A. angustatum* on the coastal plain of Georgia, and my collections confirm this for southeastern Virginia.—HOLLINS COLLEGE, VIRGINIA.

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ADDITIONAL COLLECTIONS OF ANDROPOGON ELLIOTTII CHAPM. IN SOUTHERN ILLINOIS

JOHN W. VOIGT

THE Elliott Beardgrass (Fig. 1a) is fairly well distributed in the coastal and Piedmont region, New Jersey, Florida, Texas, Missouri, Indiana, and Tennessee.¹ The species was first collected in Illinois in 1939 by L. E. Yaeger. This collection, made in Gallatin County, three miles southeast of Ridgeway, was partly the basis for the first report of Elliott Beardgrass in Illinois by Evers (1950),² who made ten collections of the grass in five southern counties.

My first collection made October 28, 1950 about six miles west of Bell Smith Springs in Pope County, was found on open ground of an abandoned field. The vegetative cover of the old field was principally composed of wire grass (*Aristida* spp.) and broom-sedge (*Andropogon virginicus*). Local communities of Elliott Beardgrass were found occupying areas which were mostly circular and ranged from small tufts to larger areas of 30 feet and more in diameter. It was surrounded or accompanied by *Andropogon virginicus* which exceeded it in abundance. Upon leaving the area, *Andropogon elliottii* was observed along the roadsides for a distance of about a mile. I have made five collections in four counties. A station for Union County is heretofore unreported (Fig. 1b). My other collections are,

¹ Blomquist, H. L. 1948. *The Grasses of North Carolina*. Duke University Press, Durham, North Carolina.

² Evers, R. A. 1950. *Andropogon elliottii* Chapm. in Illinois. *Rhodora*, vol. 52., No. 614 pp. 45-46.

with one exception, from different locations within counties recently reported by Evers.

Present known distribution shows this grass in the following counties: Gallatin (three collections), Hardin (three collections), Pope (five collections), Saline (three collections), Johnson (two



FIG. 1a. Elliott Beardgrass (*Andropogon Elliottii* Champm.) $\times \frac{1}{2}$

FIG. 1b. A map of the sixteen southernmost counties of the State of Illinois. The collection from Union County is heretofore unreported. The black dots represent the author's collections. Map adapted from Leighton, Ekblau and Horberg.

collections), and Union (one collection). According to Evers the known collections were all within the unglaciated section of southern Illinois with the exception of that by Yaeger in Gallatin County. The present collections are within this area also. Ecologically, *Andropogon Elliottii* seems to be a species of narrow amplitude.

Specimens are deposited in the herbarium of the University of Illinois, the herbarium of the State Museum, Springfield, Illinois, and the botany herbarium of Southern Illinois University, Carbondale, Illinois. The collection data are as follows: POPE Co.:

In an old field, open ground, poor eroded and gravelly soil, six miles west of Bell Smith Springs. October 28, 1950, *Voigt 455*; on roadside shoulder about two miles north of Delwood, near the county line, November 4, 1950, *Voigt 458*. JOHNSON Co.: Roadside shoulder about 1 mile east of Ozark, November 4, 1950, *Voigt 460*. SALINE Co.: Roadside shoulder about 1 mile south of Rudement, November 4, 1950, *Voigt 459*. UNION Co.: Field alongside the road in Giant City State Park, November 17, 1950, *Voigt 461*.

MORE ADDITIONS TO THE OKLAHOMA FLORA

U. T. WATERFALL

FIELD and herbarium studies made during the past year have provided additional data concerning plants little-known in our flora, or whose distribution the author finds previously recorded in floras and monographs from areas outside our state. Names of the latter are prefixed with an asterisk in this account. There are 17 such taxons recorded here.

The specimens cited in this paper may be found either in our herbarium at Oklahoma A. & M. College, or in the herbarium of the University of Oklahoma at Norman, or in both herbaria.

**CRYPTOPTERIS FRAGILIS* (L.) Bernh., forma *DENTATA* (Dickson) Clute. The form in which most of the pinnae are undivided, or merely lobed, is represented by *Waterfall 9569*, Dripping Springs Canyon, 6 miles west of state line, west of Siloam Springs, Delaware County, July 7, 1950.

**AIRA CARYOPHYLLEA* L. was collected as *Waterfall 9537*, Camp Gruber, 1½ miles northeast of Braggs, Muskogee County, June 30, 1950. Two other introduced species were found in the same general area, possibly brought in with Bermuda grass or clover seed when the site was an army camp. They are *Vulpia myuros* and *Trifolium resupinatum*.

**VULPIA MYUROS* (L.) K. C. Gmel. was collected as *Featherly, sin. num.*, Camp Gruber area, 1 mile north of Braggs, Muskogee County, June 12, 1950. According to Fernald (*Gray's Manual*, ed. 8: 108. 1950) it has been collected from "s. Me. to Wis. s. to Fla., La., and Tex."

**CAREX JOORI* Bailey. This species was collected as *Waterfall 8499*, edges of cypress (*Taxodium*) swamp, 9 miles east and 2½ miles south of Broken Bow, McCurtain County, Aug. 8, 1948. Fernald (*Gray's Manual*, ed. 8: 347. 1950) states that the western limit of the species' range is "... Texas ... se. Mo." In the *N. Am. Fl.* 18 (6): 345. 1935, essentially the same western limit is given: "Louisiana, Texas, Arkansas ... southeastern Missouri."

SMILACINA RACEMOSA (L.) Desf., var. *CYLINDRATA* Fern. *RHODORA* 40: 406. 1938. Fernald (*loc. cit.*) includes "Kansas and Colorado" as the southern limit of his range citation for var. *cylindrata*. Our material of this species is referable to the variety with long peduncles and rather cylindrical racemes. However this is as should be expected, since var. *cylindrata* is the southern variety.

**SELINOCARPUS DIFFUSUS* Gray. So referred is *Waterfall* 9001, shallow silty soil on gypsum, 6 miles south of Hollis, Harmon Co., June 15, 1949; *Waterfall* 9405, same locality, May 13, 1950; *Waterfall* 9431, 3 miles east and 7½ miles south of Hollis, Harmon Co., May 13, 1950. All of these collections have only cleistogamous flowers. Moreover the author examined hundreds of plants in this vicinity and found only cleistogamous flowers on all of them. Gray (*Am. Journ. Sci.* 15: 262. 1853) in describing the species stated: "The unopened perigonium of the precociously fructified flowers, which persists until the fruit is ripe, does not exceed a line in length; while the fully developed flowers are an inch and a half long." Standley (*Contr. U. S. Natl. Herb.* 12: 388) says "The flowers of the species are often cleistogamous, but on specimens of the species proper fully developed flowers can almost always be found." Plants were dug up for further observation. One of them flowered in the greenhouse in September, 1950. It had on it fully developed flowers 4 centimeters in length. Johnston (*Journ. Arn. Arb.* 25: 162. 1944) states that the species is known from the bluffs along the Rio Grande, "central Texas, northern trans-Pecos Texas, and northwestward through New Mexico".

**CLAYTONIA VIRGINICA* L., forma *MICROPETALA* Fern. *RHODORA* 40: 415. 1938. The small-flowered form of *C. virginica* was collected as *Waterfall* 9274, prairie, 16 miles southeast of Ada, in Coal County, April 15, 1950.

**CLEMATIS CRISPA* L. This erect little *Clematis* with the upper third of the sepals dilated into broad, crisped, petaloid margins was found in open oak woods, on flats with palmettos, 3 miles south of Tom, McCurtain County, on April 16, 1950. It was collected as *Waterfall* 9294. Fernald (*Gray's Manual*, ed. 8: 665) states that the range of this species is "Fla. to Tex., n. to se. Va., s. Ill. and s. Mo."

**THALICTRUM ARKANSANUM* Boivin. So referred is *Waterfall* 9308, in woods, edge of swamps, 4 miles south and 2 west of Tom, McCurtain Co., April 16, 1950. This collection has the tuberous, fascicled roots, the ellipsoid, or oblong-ellipsoid fruits with 5 or 6 nerves on each side as described for *T. arkansanum*. Boivin¹ cites material from Arkansas only, two of the collections being from nearby Texarkana and Fulton.

**DRABA CUNEIFOLIA* Nutt., var. *HELLERI* (Small) O. E. Schultz. So referred are *Rotha Bull* 38, (O. U.) Wichita Mountains, March 7, 1931 and *Milton Hopkins*, southwest slopes of granite boulders in the Wichita Mountains, Comanche County, April 24, 1938. This material has the strigose, ellipsoid-oblong siliques of var. *Helleri*: however, on *Rotha Bull's*

¹ Boivin, Bernard. *American Thalictres and their Old World Allies*. *RHODORA* 46: 433. 1944.

collections the pedicels are as long as 8 mm., rather than only 3 mm. as Fernald describes that variety.²

ROSA SETIGERA Michx., var. *TOMENTOSA* T. & G. So referred is *Waterfall* 9604, forming dense clumps in prairie openings in woods, 2 miles east of Braggs, Muskogee County, June 17, 1950. Fernald (*Gray's Manual*, ed. 8: 870. 1950) says the variety extends from "W. Ga. to e. Tex., n. to s. Ont., Ohio, n. Ind., Ill., and Neb." In the *N. Am. Fl.* 22 (6): 491, the western limit of the range (as *R. rubifolia* R. Br.) is given as "Texas and Nebraska."

**TRIFOLIUM RESUPINATUM* L. This little clover with purplish flowers having the standard turned outward, and with swollen, reticulate, pubescent fruiting calyces was collected in the Camp Gruber area, 1 mile north of Braggs, Muskogee County, May 6, 1950. It was taken as *Waterfall* 9386.

SPHAERALCEA ANGUSTA (Gray) Fern. In *Gray's Manual*, ed. 8, 1003. 1950, this species is said to range from "Ill. and Ia. to Ala., Mo., and Kansas". Stemen and Myers (*Okla. Flora*: 317. 1937) include it, merely stating "Dry soil. Summer". We have it as: *Waterfall* 8894, growing with *Sida procumbens* on shallow soil on limestone, 3½ miles east of Idabel, McCurtain County, June 7, 1947; *Waterfall* 9260, open post oak—black jack woods, 3 miles south of Kingston, Marshall County, August 27, 1949.

**THASPIUM TRIFOLIATUM* (L.) Gray, var. *FLAVUM* Blake. In the herbarium of Oklahoma A. & M. College is one sheet so referable. It is *Kirby* 72, limestone soil, 5½ miles south of Jay, Delaware Co., Sept. 22, 1940. In the *North American Flora*, 28B (2): 188. 1945, the distribution is given as "Pennsylvania and North Carolina, west to Ontario and Arkansas."

**SWERTIA CAROLINIENSIS* (Walt.) Ktze. is represented in our herbarium by *Sooter* 174, oak-pine forest in bottom of Mountain Fork River, State Game Preserve, 21 miles north and 10 miles east of Broken Bow, McCurtain Co., July 19, 1950. In *Gray's Manual*, ed. 8, the range is given as "Ga. to La., n. to w. N. Y., s. Ont., Mich. and Wisc."

**SARCOSTEMMA CRISPUM* Benth. This crisp-leaved species of *Sarcostemma* is represented by *Waterfall* 7772, gypsum hills along the Elm Fork of the Red River, 3 miles west and 14 south of Erick in Harmon County, June 3, 1947. Cory (*Catalogue of the Flora of Texas*. 83. 1938) lists the species from areas 3, 5 and 6, Rio Grande Plains, Edwards Plateau and the Trans-Pecos Area. It is not listed from the Plains country between the Edwards Plateau and southwestern Oklahoma, but undoubtedly must occur in some of the rougher parts of this area, particularly in the "breaks" near rivers, or sites where *Juniperus Pinchoti* is to be found.

**KICKXIA ELATINE* (L.) Dumort was collected as *Waterfall* 9660 along small stream running through wooded limestone and shale hills, 2 miles

²Fernald, M. L., *Draba in Temperate Northeastern America*. RHODORA 36: 367. 1934.

east of Tahlequah, Cherokee Co., July 31, 1950. Pennell³ records the species as "extending inland to Indiana and Missouri."

**BERLANDIERA TOMENTOSA* Nutt., var. *DEALBATA* T. & G. So referred are: *Waterfall* 7038 from prairie alternating with woods, 3 miles west and 2 north of Siloam Springs, Delaware County, June 8, 1947; *Waterfall* 9582, wooded valley, 3 miles south of Kansas, Adair County, July 7, 1950. This material has the pannose tomentum, stems branched at the summit, and leaves whitened with tomentum beneath, with the upper ones becoming deltoid in outline, as described for var. *dealbata* (T. & G., *Flora of North America* 2: 282. 1843; Gray, *Synoptical Flora of North America*. 1 (2): 243. 1886). Torrey and Gray (*l. c.*) cited Nuttall's material from Arkansas and Drummond's from Texas.

**COREOPSIS TINCTORIA* Nutt., forma *ATROPURPUREA* (Hook.) Fern. The form with purplish-brown rays was collected as *Waterfall* 9527, edge of woods, 2 miles north of Ft. Gibson, Cherokee County, June 30, 1950.

**POLYMNIA CANADENSIS* L., forma *RADIATA* (Gray) Fassett. The form with well-developed rays was collected as *Waterfall* 9589, small canyon in mountains, 5 miles northeast of Tahlequah, Cherokee Co., July 7, 1950. All the material seen in this area, where it was fairly common, had well-developed rays.

DEPARTMENT OF BOTANY AND PLANT PATHOLOGY

OKLAHOMA A. & M. COLLEGE, STILLWATER, OKLAHOMA

A GLABROUS VARIETY OF *SILPHIUM TEREBINTHINACEUM*.—At the close of the Columbus, Ohio meetings of the American Institute of Biological Sciences in September, 1950, the author participated in a two-day field trip planned by the Ecological Society of America in conjunction with the Systematic Section of the Botanical Society of America and the American Society of Plant Taxonomists. Capably conducted by Dr. E. Lucy Braun of the University of Cincinnati and Dr. John N. Wolfe of Ohio State University, the company of botanists was led to various interesting sections of Adams and Hocking counties in unglaciated southern Ohio.

At one of the last stations on the trip scheduled for inspection, Dr. Braun called our attention to an unusual natural prairie in Adams County. Here, among a number of other species, were pointed out many plants of *Silphium terebinthinaceum* in which the upper leaf surface was glabrous. Dr. Braun explained that

³ Pennell, Francis W. *The Scrophulariaceae of Eastern Temperate North America*. Acad. Nat. Sci. Phil. Monog. 1. 1935.

she had observed such smooth-leaved examples for a period of years, and a stop later at another prairie station verified her belief that this was the common type in the unglaciated section of Ohio and was the same as what she had also found in parts of Kentucky.

Examination of Dr. Braun's collections submitted for study and of additional material preserved in the herbarium of the Chicago Natural History Museum indicates that the plant with the glabrous upper leaf surface may best be described as constituting a new variety. In typical *S. terebinthinaceum* the leaves above are either definitely rough with strumose hairs or the enlarged bases of these hairs persist partly or wholly over the leaf surface. In contrast, the new variety has the leaves above glabrous or completely smooth, and there are no indications of persistent bases of trichomes. The lower surface of the leaves of both typical *S. terebinthinaceum* and the new variety is rough-scabrous and always much rougher than the upper surface.

It is fitting, therefore, in view of Dr. Braun's original observations on these plants, to associate her name with this new variety as

***Silphium terebinthinaceum* Jacq., var. *Lucy-Brauniae* Steyermark, var. nov.**, a typo differt laminis foliorum supra glabris.—**TYPE:** prairie, north part of Jefferson Top, southeast of Scrub Ridge, 2½ mi. north of Ohio route 348, Adams County, Ohio, August 17, 1950, *E. Lucy Braun* (2 sheets, in herb. E. Lucy Braun).

Other specimens examined: **Ohio:** prairie on limestone, 5.8 mi. north of Jones Corner, Adams County, September 15, 1950, *Steyermark 70564* (herb. Chi. Nat. Hist. Mus.). **Kentucky:** prairie patches on limestone ridge-top, Clack Mountain, Rowan County, May 22, 1937, *E. L. Braun 1460* (herb. E. Lucy Braun); same locality, September 28, 1950, *Braun 4870* (herb. E. Lucy Braun, herb. Chi. Nat. Hist. Mus.); ridge crest, south of Peach Grove, Pendleton County, July 8, 1941, *Braun 4036* (herb. E. Lucy Braun). **Mississippi:** Agricultural College, Oktibbeha County, August 11–17, 1896, *C. L. Pollard 1332* (herb. Chi. Nat. Hist. Mus.). **Illinois:** Lord's Park, vicinity of Elgin, July 29, 1917, *C. Gronemann 44* (herb. Chi. Nat. Hist. Mus.).

Harper 3812 from Calhoun County, Alabama, and *Ruth s. n.* from Knoxville, Tennessee (both specimens in herb. Chi. Nat. Hist. Mus.) have the upper leaf surface apparently smooth and glabrous, but closer examination reveals some of the enlarged white basal portion of the hair still persisting on the surface.

In the *Steyermark* specimen from Ohio, it was noted that the rays were shorter, the heads smaller, and the plant itself of smaller

stature compared with typical *S. terebinthinaceum*, but these differences have not been correlated in other material examined. Apparently, there is considerable variation in typical *S. terebinthinaceum* as to height of plant, size of leaves, size of heads, and length of ray flowers.—JULIAN A. STEYERMARK, Chicago Natural History Museum, Chicago, Illinois

PELTANDRA VIRGINICA IN WELLAND COUNTY, ONTARIO.—*Peltandra virginica* (L.) Schott & Endl., the Virginian Arrow Arum has long been considered a rare plant in Ontario. Macoun, in his Catalogue of Canadian Plants, published in 1888 made reference to this fact. In describing its occurrence “. . . in a marsh about a mile beyond ‘The Ferry’ Prince Edward County, near Belleville, Ontario . . .” he implied that this was the only location known to him at that time. Soper, in his Preliminary Checklist of Plants in Ontario South of the Canadian Shield, published in May, 1949, indicates that Macoun’s record for *Peltandra virginica* stands alone for this Province, and further emphasizes the rarity of this species by suggesting the possibility that it may be extinct in Ontario, since no recent records have come from the only known station in the Belleville area.

In 1949 considerable interest was aroused when it became known that specimens of *Peltandra virginica* were included in plant collections submitted to McMaster University by Mr. Bert Miller, naturalist of Fort Erie, who was engaged in collecting in Welland Co., Ontario during the summer of 1948. These activities were part of a project involving extensive floral studies in the counties bordering the eastern portion of Lake Erie, initiated by the Department of Botany and assisted financially through a grant from the Ontario Council of Research.

According to Gray’s Manual of Botany, 8th edition, 1950, *Peltandra virginica* is widely distributed in the United States, including neighboring New York State, hence it is not surprising that it should be found in portions of Southern Ontario. This new record for Welland County, however, is particularly interesting, since after careful searching it has been found in this one specific area only—near the mouth of one of the sluggish streams flowing into Niagara River between Niagara Falls and Fort

Erie. The plants have formed dense clumps from two to four feet in diameter in shallow water and are distributed frequently throughout about one quarter of a mile of the length of the stream at this point. Plants do not occur either above or below this specific area.

The heavy foliage and slender inflorescences are carried well above the surface of the water. The tightly rolled spathe with pale undulate margin enclosing the whitish spadix with staminate flowers extending to the tip, agrees with Fernald's description published in RHODORA, Vol. 50: 591, March 1948. The dark green berries which are submerged at maturity because of the recurving habit of the fruiting scape, were collected in September, 1950, but on later examination on October 17th, no fruits were found in any of the inflorescences which could be reached. The spathes which had become considerably distended appeared to have been torn open, suggesting that some form of wildlife may have attacked them and removed the fruits. In literature pertaining to natural aquatic food for waterfowl it is indicated that the fruits of this plant, commonly called "Wampee" or "Duck Corn" are occasionally found in the crops of wood ducks. This lends support to the above, that the fruits may have been utilized for food.

To investigate the biology of this plant and to further explore its potentialities as a natural food for waterfowl, it has been successfully introduced under control, into the aquatic plant nursery in Cootes Paradise Marsh by the Royal Botanical Gardens, Hamilton.—L. LAKING, McMaster University & Royal Botanical Gardens, Hamilton, Ontario, Canada.

Volume 53, no. 628, including pages 97-115 and plate 1166, was issued 18 April, 1951.

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